

The Scarce Swallow-tail: *Iphiclides podalirius* (L.) in Britain

By R. S. WILKINSON, Ph.D., F.L.S., F.R.E.S.*

I: The evidence before Haworth

There has been considerable debate about what relation *Iphiclides podalirius* (L.) has to the fauna of the British Isles. Many records of the capture of adults of the "Scarce Swallow-tail" in Britain leave at least one fact beyond question: specimens have been taken within the area. Although there can be little doubt about this, the question of their origin remains. The various replies are familiar to every serious student of the British Lepidoptera; they have ranged from the hypothesis that *podalirius* is native to England, to the dubious insistence that records have been either mistaken or based on deliberately introduced specimens. The present informed opinion seems to be similar to that of Howarth (1973), who suggests that the species "has been but rarely recorded in Britain. The origin of these specimens will remain a mystery but it seems most unlikely that this species was ever resident here. In the past it was included in several books as a resident but few if any specimens survive from that period. However, there are a few authentic records which justify the species' inclusion. . . ." Howarth mentions a number of captures, all of which will be discussed in course.

Within this tolerant climate of opinion, it would appear to be a propitious time to survey the evidence for occurrences of *podalirius* in Britain once more. In 1965 Mr. J. M. Chalmers-Hunt and I began collecting references to *podalirius* in the appropriate literature; I concentrated on the period before 1850 and he searched for later observations and opinions. Mr. Chalmers-Hunt kindly turned over his voluminous notes to me in 1966. Inspired by his research, I have since added some later references to those furnished by him. The following paper, which will appear in parts of differing length, will examine the references to *podalirius* in Britain and attempt an interpretation from the available data, including the opinions of several eminent contemporary students of the British and Continental fauna.

The first printed work which can be said to deal at any length with British insects is a sixteenth-century book which was apparently not published before 1634. It is a curious accretion which began as a compilation of notes by Conrad Gessner (1516-65), certainly for a volume of his *Historia Animalium* which he did not live to finish. Gessner's notes were sorted and greatly amplified by his friend, the Englishman Thomas Penny. The resulting materials were bequeathed to Thomas Moffet, who similarly added data and completed the final manuscript in 1589 (British Library, Sloane MS. 4014). Moffet died in 1604 and the manuscript was eventually published by Theodore Mayerne in 1634. The lengthy story of the *Insectorvm sive Minimorum Animalium Theatrvm* has been traced by Raven (1947) and Lisney (1960).

* The Library of Congress, Washington, D.C. 20540.

The *Theatrvm* includes a woodcut and description of the butterfly later named *podalirius*; it is clearly differentiated pictorially from *Papilio machaon* L. (an account and illustration of which appears on the same page), and a less conclusive text follows: "non multum colore abludit, nisi quod internarum alarum exphyles, totaque ipsarum extima lacinia glastiva sit; uti & tres illi spintheres, quos sub concava illarū parte vides depictos". (The 1658 translation of the *Theatrvm* renders the Latin as "not much unlike in colour [from *machaon*], but that the extuberances, and the outmost border of the innermost wings is sky or woad-colour; as also those three taches which you see painted under the hollow part of them".) But despite the considerable contribution by English entomologists, the insect is not specifically stated to be British. Indeed, the *Theatrvm* was meant to be a general treatise on insects; for example, the Nearctic *Papilio glaucus* L. is depicted and described on the facing page, from a drawing by John White (Wilkinson, 1973).

The first halting attempt at a British list, Christopher Merret's *Pinax, Rerum Naturalium Britannicarum* (1666) makes no mention of *podalirius*, but Merret does not include *machaon* either. With the great attempt at entomological elucidation begun in England by the elderly John Ray, James Petiver, Samuel Dale and others at the end of the seventeenth century, *machaon* entered the literature (it was named "The Royal William", after William II, who reigned from 1689 to 1702), and no less a naturalist than Ray was the first to refer to *podalirius* as a possible addition to the native list. After his description of the insect in the posthumously published *Historia Insectorum* (1710), Ray noted that "in *Etruria* invenimus, atque etiam, ni male memini, in *Anglia*". So he had definitely seen *podalirius* during his 1664-65 residence in Italy with Francis Willughby, and was depending on his memory for its occurrence in England. The English observation (if Ray's memory was correct) may well have been made after the Italian one, for Ray did not really begin an earnest and determined study of insects until about 1690 (Raven, 1950). Because of these efforts, and the fact that Ray's new interest was well known to other naturalists, it is at least possible that he might have seen one of the occasional specimens of *podalirius* which have been found in England.

Yet Petiver, who eventually mentioned and figured all the British Rhopalocera which he had seen in the field and in collections, does not refer to *podalirius* as British in either his manuscripts or his publications, and he had ready access (as we know from his correspondence) to Ray's specimens. Petiver did include a *podalirius* on Plate 133 of his *Gazophylacii Naturæ & Artis*, but it was depicted among a group of "Papiliones Etruriae" from his correspondent Bruno Tozzi, and the brief undated catalogue to Plates 101-155 cites Ray's description but does not mention the insect as other than Italian. Petiver did *not* include *podalirius* in the culmination of his study of the English butterflies, *Papilionum Britanniae Icones, Nomina &c*

(1717), so we can assume from all this that an English specimen of *podalirius* was unknown to Petiver; that such a specimen was not in Ray's collection in the closing years of his life; and that the first reference to *podalirius* as possibly seen in England is conjectural.

After Ray's unsubstantiated reminiscence, *podalirius* vanishes from the British literature for a long period. The chief writers of the early and mid-eighteenth century, Eleazar Albin, Benjamin Wilkes and Moses Harris, do not mention it. But in John Berkenhout's *Outlines of the Natural History of Great Britain and Ireland*, I (1769), *podalirius* appears for the first time as definitely on the British list. Berkenhout says that "In shape and colour" it is much like *machaon*, "but the yellow is paler. . . . Rare, in woods".

By 1769 English naturalists knew a great deal about their lepidopterous fauna, and at first glance it is curious that Berkenhout should be the first to publish a definite report of *podalirius*. He was by no means primarily an entomologist, although after an unlikely beginning he acquired a good and comprehensive knowledge of natural history. Berkenhout (ca. 1730-1791) was born in England and brought up to a commercial career. He spent some years in Germany, toured the Continent, became an officer in a Prussian military regiment, later enlisted in the British service, and left it to study medicine at Edinburgh, finally taking his M.D. at Leyden in 1765. While a student he published a very popular and useful Linnean botanical lexicon, *Clavis Anglica Linguae Botanicae* (1764), which went through several editions. He pursued a varied career, writing on a number of topics and serving as a diplomat during the American War for Independence. His *Outlines of Natural History* was successful; a second volume was printed in 1770 and a third in 1772, and three editions appeared (Lisney, 1960). Berkenhout had ample opportunity to observe *podalirius* in Europe, and he was familiar with the appropriate literature. His statement "rare, in woods" is quite specific and was certainly not derived from Ray's conjecture. It is quite possible that Berkenhout was lucky enough to see a specimen of *podalirius* taken in England. Indeed, the subsequent history of the insect has demonstrated that due to its extremely infrequent occurrence it has been observed by chance and not necessarily by well-known entomologists. At any rate, although a specimen does not remain (and relatively few eighteenth-century entomological specimens *do* remain), Berkenhout's report is at least as valid as some of those from the nineteenth century, and so much attention has been given to it because it was the basis for the initial belief that *podalirius* was a native species.

In his *Catalogue of British Insects* (1770), John Reinhold Forster included *podalirius* on the authority of Berkenhout. Moses Harris did not mention the species in his very popular handbook, *The English Lepidoptera* (1775), probably because in a long career in the field he had never encountered it. But in *The Aurelian's Vade Mecum* (1785), Matthew Martin hopefully

included *podalirius* in his alphabetical list of foodplants of English species, as feeding on cabbage (which it does not do), and the mistake will figure in the second part of this paper.

In the first really extensive survey of British entomology, Edward Donovan included *podalirius* as a native species, again on the authority of Berkenhout. In the fourth volume of *The Natural History of British Insects* there is a superb coloured plate of *podalirius*, which Donovan called the "Scarce Swallow-tail". He described the larva, pupa and imago, explaining that "We have received the Butterfly from North America" (incorrect; he had obviously been sent *Graphium marcellus* [Cramer], which looks at least something like *podalirius*) "as well as from Germany" (undoubtedly correct); "it appears to be a native of most parts of the European Continent, though perhaps not frequently found. Berkenhout is the only writer who has described it as an English species; he says it is rare (in this country), found in woods".

In the same year and in another very influential work, William Lewin's *The Insects of Great Britain* (1795), *podalirius* was given a coloured plate, superior to that of Donovan. Lewin described the metamorphosis, indicating that "This elegant species of butterfly is said to have been caught in England, and therefore I thought it not improper to give a figure of it". He explained that the imago was drawn from a specimen taken by Sir James Edward Smith, near Paris, and the immature stages were from "Roesel" (*i.e.*, Roesel von Rosenhof, *Der monatlich-herausgegebenen Insecten-Belustigung*, 1746-61).

Thus, spurred on by the well-received work of Donovan and Lewin's similarly popular book, British aurelians yearned to capture *podalirius*. However, at the beginning of the nineteenth century the actual evidence for the occurrence of *podalirius* in England was scanty indeed; Ray's statement had been forgotten, and every reference to the insect as native was ultimately derived from Berkenhout. In his publications and correspondence, Adrian Hardy Haworth was the next British entomologist to deal with *podalirius*, and he was to provide the first specific data.

References

- Berkenhout, J. 1764. *Clavis Anglica linguae botanicae*. London.
 ———, 1769. *Outlines of the natural history of Great Britain and Ireland*, I. London.
 British Library. Sloane Manuscripts.
 Donovan, E. 1795. *The natural history of British insects*, IV. London.
 Forster, J. R. 1770. *Catalogue of British insects*. Warrington.
 Gessner, C. 1551-87. *Historia animalium*. Zurich.
 Harris, M. 1775. *The English lepidoptera*. London.
 Howarth, T. G. 1973. *South's British butterflies*. London and New York.
 Lewin, W. 1795. *The insects of Great Britain*. London.
 Lisney, A. A. 1960. *A bibliography of British lepidoptera*. London.
 Martin, M. 1785. *The aurelian's vade mecum*. Exeter and London.
 Merret, C. 1666. *Pinax, rerum naturalium Britannicarum*. London.
 Moffet, T. 1634. *Insectorvm sive minimorum animalium theatrvm*. London.

- _____. 1658. *The theater of insects*. London.
 Petiver, J. n.d. *Gazophylacii naturæ & artis*. London.
 _____. 1717. *Papilionum Britannicæ icones, nomina &c.* London.
 Raven, C. E. 1947. *English naturalists from Neckam to Ray*. Cambridge.
 _____. 1950. *John Ray, naturalist*. Cambridge.
 Roesel von Rosenhof, A. J. 1746-61. *Der monatlich-herausgegebenen Insecten-Belustigung*. Nurnberg.
 Wilkinson, R. S. 1973. John White's drawings of *Papilio glaucus* L. (Lepidoptera: Papilionidae): new light on the "first American butterfly" and the problem of *glaucus* versus *antilocheus* L. *Great Lakes Ent.*, 6: 15-18.

Notes and Observations

HADENA CAESIA D. & S. AND OTHER LEPIDOPTERA IN ISLAY IN 1975. — I spent a week, 26th July to 2nd August, in the glorious island of Islay. My main quarry was the larvae of *Hadena caesia mananii* Gregson, which was discovered here a few years ago by Dr R. E. M. Pilcher. In spite of very hard work by day and night, I came away with only six larvae, as I thought, and no moths, for which I was apparently too late. Later on, however, I am glad to say that over a dozen others were found in my bags of foodplant. As little has been written on this island I add a list of lepidoptera seen during my visit.

Pieris napi L., *Aglais urticae* L., *Nymphalis io* L., *Eumenis semele* L., *Maniola jurtina* L., *Coenonympha pamphilus* L., *Lycaena phlaeas* L., *Polymmatius icarus* Rott., *Pheosia gnoma* F., *Ptilodon capucina* L., *Ochropacha duplaris* L., *Arctia caja* L., *Spilosoma lubricipeda* L., *Euxoa tritici* L., *Lycophotia porphyria* D. & S., *Standfussiana lucernea* L., *Amathes xanthographa* F., *Diarsia mendica* D. & S., *Xestia c-nigrum* L., *Anaplectoides prasina* D. & S., *Noctua comes* Hb., *N. pronuba* L., *M. fimbriata* Schreb., *N. ianthina* D. & S., *Lacanobia oleracea* L., *Hadena rivularis* F., *H. confusa* Hufn., *A. caesia* Gregs., *Cerapteryx graminis* L., *Cleoceris viminalis* F., *Luperina testacea* D. & S., *Oligia fasciuncula* Haw., *Mesapamea secalis* L., *Apamea monoglypha* Hufn., *A. lithoxylea* D. & S., *A. crenata* Hufn., *A. remissa* Hb., *Phlogophora meticulosa* L., *Amphipoea lucens* Frey, *A. crinanensis* Burrows, *Hydracea micacea* Esp., *Celaena haworthii* Curtis, *C. leucostigma* Hb., *Naenia typica* L., *Photodes pygmina* Haw., *Mythimna impura* Hb., *M. pallens* L., *Stilbia anomala* Haw., *Diachrysia chrysitis* L., *Autographa gamma* L., *A. pulchrina* Haw., *Acasia viretata* Hb., *Eulithis pyraliata* D. & S., *Thera obeliscata* Hb., *Xanthorhoe munitata* Hb., *X. montanata* Borkh., *Venusia cambrica* Curt., *Epirrhoe alternata* Mull., *Cosmorhoe ocellata* L., *Hydriomena furcata* Thunb., *Eupithecia pulchellata* Steph., *E. venosata* F., *E. gooseniata* Mab., *E. nanata* Hb., *Gnophos obscuratus* D. & S., *G. obfuscatus* D. & S., *Crocallis elinguaris* L., *Hylaea fasciaria* L., *Biston betularia* L., *Alcis repandata* L., *A. jubata* Thunb. — AUSTIN RICHARDSON, Orchard Cottage, Box, Stroud, Glos. GL6 9HR.